

Pinnacle Plus Series

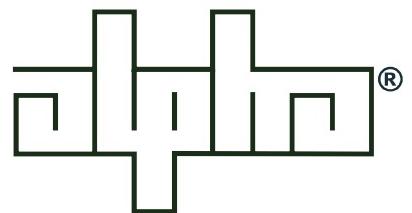
700/1000/1500/2000/3000

Tower and Rack Mount UPS's

Uninterruptible Power Supplies

From Alpha Technologies

■ Operator's Manual

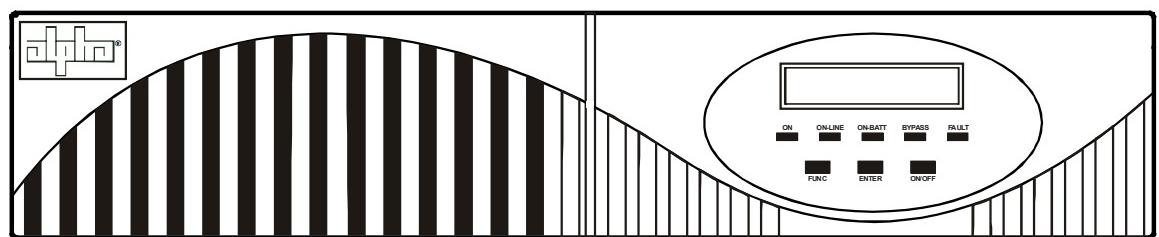
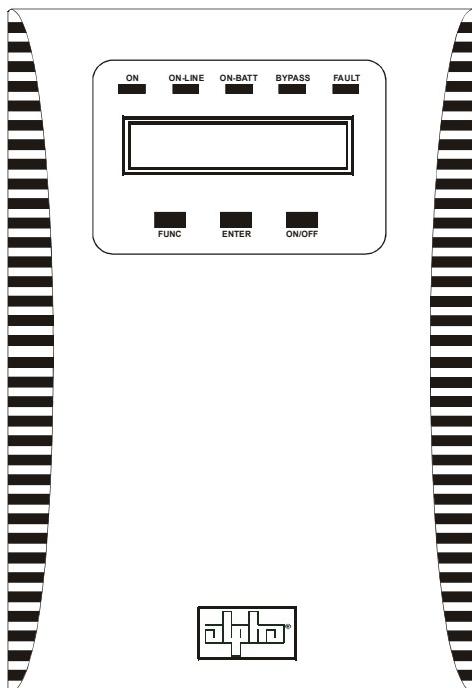


■ Operator's Manual

■ *Pinnacle Plus Series*

700/1000/1500/2000/3000

Tower and Rack Mount UPS's



Alpha Technologies

Save This Manual

It contains important installation and operating instructions.
Keep it in a safe place.



CAUTION

Risk Of Electrical Shock



To reduce the risk of electrical shock and to ensure the safe operation of the Pinnacle Plus Series of UPS's, these symbols are used throughout this manual. Where they appear only qualified personnel should carry out the instructions.



A DANGEROUS VOLTAGE exists in this area. Use extreme caution.



ATTENTION: Important operating instructions. Follow them exactly.

NOTICE:

The Pinnacle Plus Series generates, uses and can radiate radio frequencies if not installed and tested in accordance with the instructions contained in this manual. It has been tested and found to comply with the limits established for a Class A computing device pursuant to part 15 of FCC rules when it is operated alone. It also complies with the radio interference regulations of DOC which are designed to provide reasonable protection against such interference when this type of equipment is used in a commercial environment. If there is interference to radio or TV reception, which is determined by switching it on and off, relocate the equipment or use an electrical circuit other than the one used by the Pinnacle Plus.

Safety Checklists



DANGER: Do not expose the unit to rain or moisture.



This equipment is to be installed and operated by people trained in the safe use of high-energy power supplies and their batteries. Also assumed is knowledge of the local electrical code(s) and how to safely apply them.



DANGER: Sealed lead-acid batteries with high energy and chemical hazards are used. This manual contains important operation and safety instructions. Only qualified personnel should service the Pinnacle Plus.

Pinnacle Plus Series Safety Checklist

- Carefully unpack the unit. Report any shipping damage at once.
- Read this manual. If you have any questions about the safe installation, operation or maintenance of this unit, contact Alpha Technologies' customer service department.
- Before installation**, confirm the voltage and current input requirements of the load(s) is compatible with the unit's output. Also see the line voltage and current is compatible with the unit's input requirements.
- Install the unit on a dedicated circuit.
- All wiring must meet the local electrical code(s).
- Place a warning label on the utility panel to tell emergency personnel an Uninterruptible Power Supply (UPS) is in the building.
- Use proper lifting techniques when moving the unit.
- The unit has more than one live circuit. AC power may be present at the outputs even if the unit is disconnected from line power.

Safety Checklists (Continued)

Battery Safety Checklist

- There are dangerous voltages inside the unit. Only qualified people should perform installation and maintenance.
- Live battery wires must not touch the unit's chassis or any other metal objects. ***This can cause a fire or explosion.***
- Inspect the batteries once a year for signs of cracks, leaks or swells. Replace as required.
- When batteries are in storage, charge them at least once every three months for optimum performance and to extend their lifetime.
- Always** replace batteries with ones of identical type and rating. **Never** install old or untested batteries.
- Use insulated tools during servicing.
- Remove all rings, watches, jewelry or other conductive items before working inside the unit.
- Follow local regulations for battery disposal. Recycling is the best method.
- Never** burn batteries to dispose of them. ***They may explode.***
- Never** open the batteries. ***The contents are toxic.***



Battery Emergency Procedures:

If electrolyte splashes on your skin, immediately wash the skin with water. If electrolyte gets into your eyes, wash them for at least 10 minutes with clean water or a special neutralizing eye wash solution. Seek medical attention at once.

Neutralize spilled electrolyte with special neutralizing solutions in a “spill kit” or a solution of 1 lb. of bicarbonate of soda in 1 gallon of water.

Table of Contents

1. Introduction	1
1.1 The Pinnacle Plus Advantage	2
1.2 Unpacking and Inspection Checklist	3
1.3 The Pinnacle Series	5
2. Installation	9
2.1 Pre-Installation Checklist	10
2.2 Wiring the Unit	10
2.3 Connecting External Battery Packs	11
2.4 Connecting an Emergency Power Off Switch	12
2.5 Connecting the RS-232 Port	13
2.6 Network Connection	13
3. Operation	14
3.1 Turning the Unit On and Off	15
3.2 Using the Control Panel	16
3.3 Self Test	17
3.4 Changing the Parameters	17
3.5 Troubleshooting	20
3.6 Battery Replacement	21
3.7 Specifications	22
Warranty	23

Section 1

Introduction

This section introduces you to the Pinnacle Plus series of UPS's:

- The Pinnacle Plus series many advantages (Section 1.1).
- An unpacking and inspection checklist (Section 1.2).
- An tour of the units, their connectors, switches and control panels (Section 1.3).

1.1 The Pinnacle Plus Series Advantage

The Pinnacle Plus series is an indoor Uninterruptible Power Supply (UPS) that uses advanced technology to protect computer networks, telecommunications installations and other vital instruments from power line disturbances.

The Pinnacle Plus series uses a double conversion circuit and a digitized microprocessor to provide continuous power to the loads. It offers complete protection against brownouts, spikes, sags, voltage transients and frequency changes.

■ Automatic Shutdown/Restart

The Pinnacle Plus series shuts down when the batteries are discharged, preventing damage to the unit. When line power is requalified, the Pinnacle automatically restarts, providing power to the loads and recharging the batteries.

■ RS-232 Communication

The Pinnacle Plus series can be remotely monitored and controlled.

■ LCD/LED Display Panel

The LCD/LED display provides "at-a-glance" monitoring.

■ Battery Charge Display

The LCD shows the battery % charge, battery backup time and battery voltage.

■ Load Display

The LCD shows the unit's % loading and the loading in watts and VA.

■ Automatic Bypass

When the Pinnacle Plus detects an internal fault such as deep battery discharge or an overload, it automatically uses its built-in bypass circuit to switch the load to line power.

■ Fully Digitized Microprocessor Controlled

Pure sine wave output with less than 3% THD.

■ Cold Start

If there is no line at the input, the Pinnacle automatically provides battery power to the load.

■ Load Shedding

The power management software allows less important equipment to be turned off during power outages to save battery power for the critical loads.

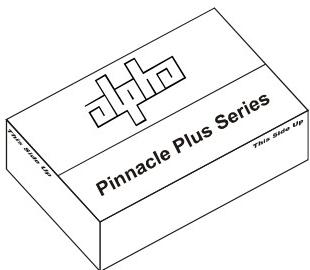
1.2 Unpacking and Inspection Checklist



TIP: If items are missing or damaged, contact Alpha and the shipping company at once. Most shippers have a short claim period.

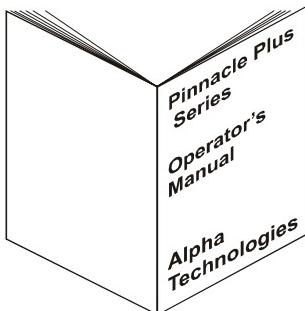
Carefully remove the unit from its shipping container. Inspect it for damage and make sure the following items are included:

- One Pinnacle Plus series UPS with pre-installed batteries.
- One operator's manual.
- One power cord.
- One Alphamon CD-ROM.
- One RS-232C interface cable.
- Any ordered options.



Save The Original Shipping Container

If you need to return the unit for servicing, pack it in the original shipping container. Alpha is not responsible for damage caused by the improper packaging of returned units.



Read This Manual

Before installation, become familiar with your unit by reviewing the procedures and drawings in this manual. If you have any questions about the safe installation, operation or maintenance of the unit, contact Alpha's customer service department.

1.2 Unpacking and Inspection Checklist (Continued)

For technical support contact Alpha Technologies customer service department directly at:

United States: (360) 647-2360

Germany: +49-9122-79889-0

Canada: (604) 430-1476

Middle East: +357-253-75675

United Kingdom: +44-1279-501110

Australia: +61-2-9722-3320

For emergency technical support 7 days a week / 24 hours a day call:

USA: 1-800-863-3364

CANADA: 1-800-667-8743

Complete the following for your records

Serial # _____

Options _____

Purchase Date _____

This Pinnacle Plus was purchased from

Dealer _____

City _____

State/Province _____

Zip/Postal Code _____

Country _____

Telephone # _____

Fax # _____

E Mail _____

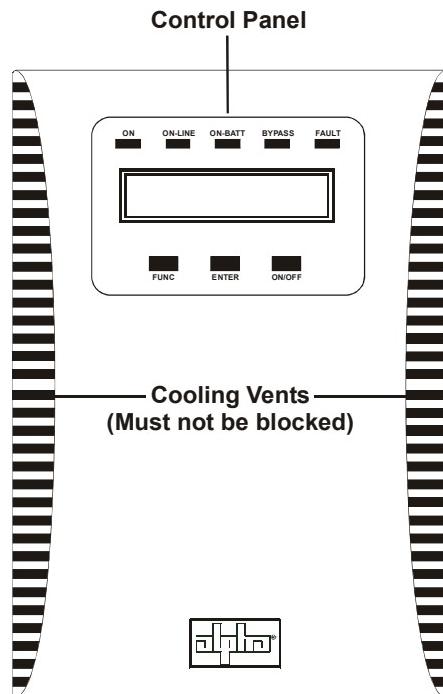
1.3 The Pinnacle Plus Series

1.3.1 Front Panel

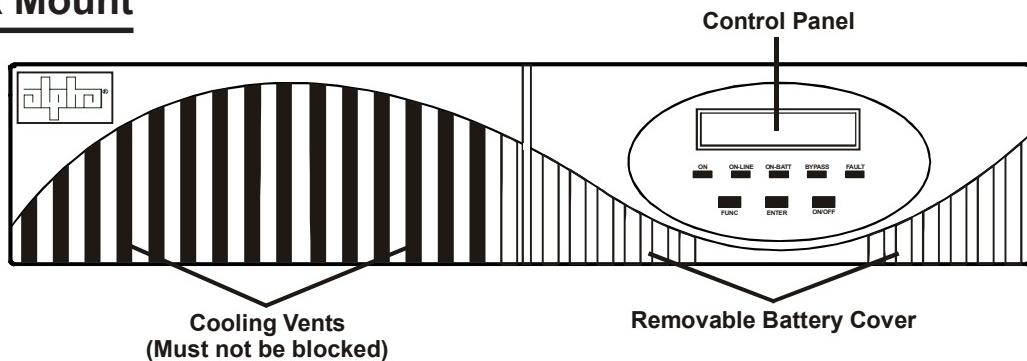
These drawings are used for illustrative purposes only. See your unit for the exact location and type of all switches and controls. The batteries are reached through this panel.

The control panel's operation is described in Section 3.2.

Tower Mount



Rack Mount



1.3 The Pinnacle Plus Series (Continued)

1.3.2 Rear Panel

These drawings are used for illustrative purposes only. See your unit for the exact location and type of all connectors, switches and circuit breakers.

Tower Mount

Figure 1.1
700VA/1KVA/1.5KVA

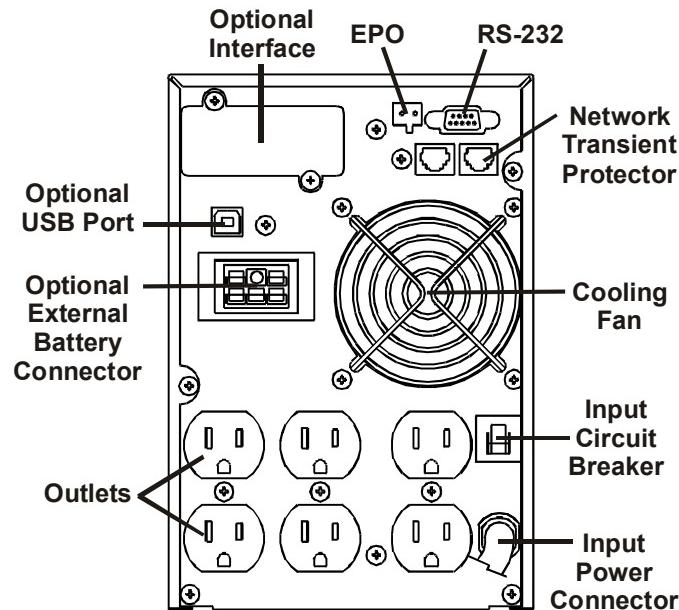
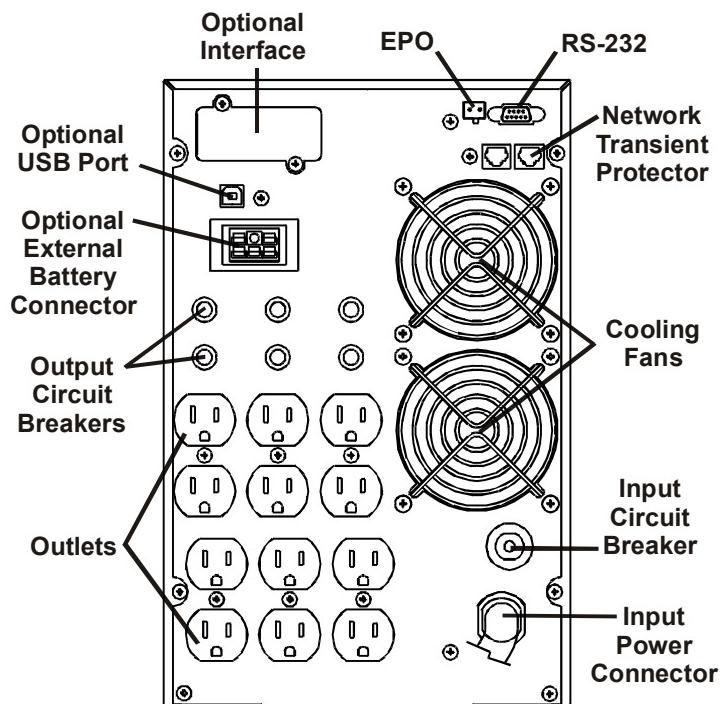


Figure 1.2
2KVA–3KVA



1.3 The Pinnacle Plus Series (Continued)

Rack Mount

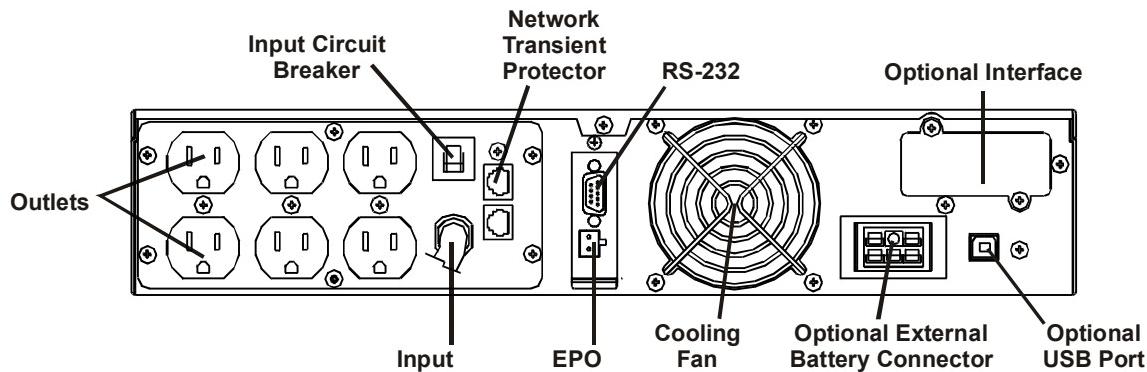


Figure 1.3
700VA/1K/1.5KVA

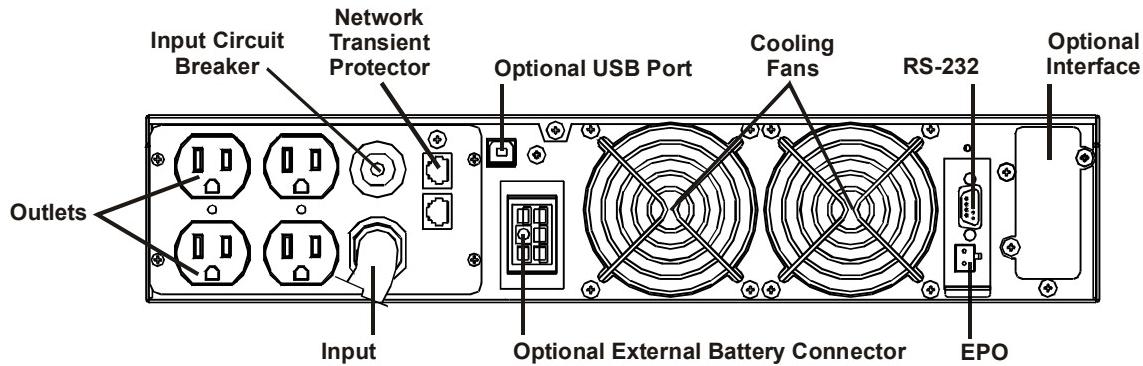


Figure 1.4
2KVA–3KVA

1.3 The Pinnacle Plus Series (Continued)

1.3.3 Available Output Connectors

Multiple configurations are available from the factory for various requirements.

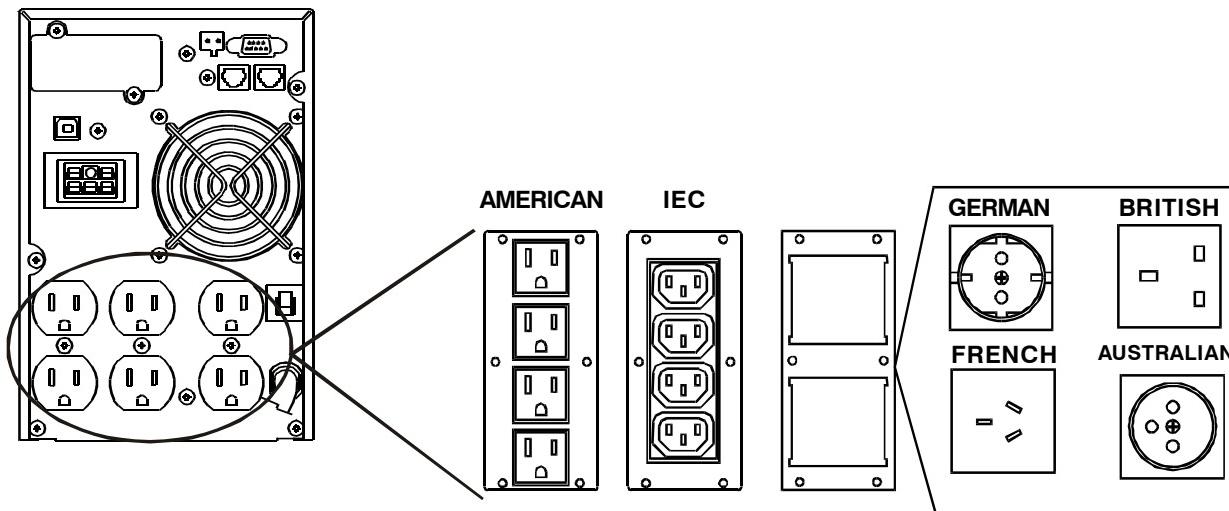


Figure 1.5
Output Connectors

Section 2

Installation

This section tells you how to install the Pinnacle Plus series.

- A pre-installation checklist (Section 2.1).
- How to connect the unit to the line and the loads (Section 2.2).
- How to connect an external battery pack (Section 2.3).
- How to connect an emergency power off switch (Section 2.4).
- How to connect the RS-232 port (Section 2.5).
- How to connect the unit to a network (Section 2.6).

2.1 Pre-Installation Checklist

Placement

The Pinnacle Plus is an indoor unit. Install it in a dry, dust-free, well-ventilated area with a temperature of between 60°F to 77°F (15°C to 25°C). Place it on a flat, level surface that will support its weight (up to 73 lbs, (33 kg)).

The front panel must be easily accessible to the operator.

Do not block the unit's ventilation slots or the fans. There must be at least 4 inches (100 mm) between the rear panel and the wall and 2 inches (50 mm) between the walls and the side panels.

Utility Circuit Breaker

Wire the unit to a dedicated circuit equipped with a circuit breaker. See Section 3.7 for the unit's input specifications. All wiring should meet the National Electrical Code ANSI/NFPA 70.

Grounding

Older facilities may have improper grounding. A qualified electrician should inspect it before installation to see that it meets the local electrical code.

Adding New Equipment

Shut down the unit (Section 3.1) and then disconnect the line cord before adding any new loads, battery packs or other equipment.

2.2 Wiring the Unit

Procedure:

- 1** Connect the load(s) to the unit's output connector(s) (Figure 2.1).
- 2** Connect RS-232 or other communications, emergency power off switch, battery packs or any other options (Sections 2.3 to 2.6).
- 3** Connect the line to the unit's input connector.



TIP: Determine what output voltage you are using. When starting the unit for the first time, see if you need to configure the unit's output voltage (Section 3.4).

Wiring Finished

Turn on the unit as described in Section 3.1.

2.2 Wiring the Unit (Continued)

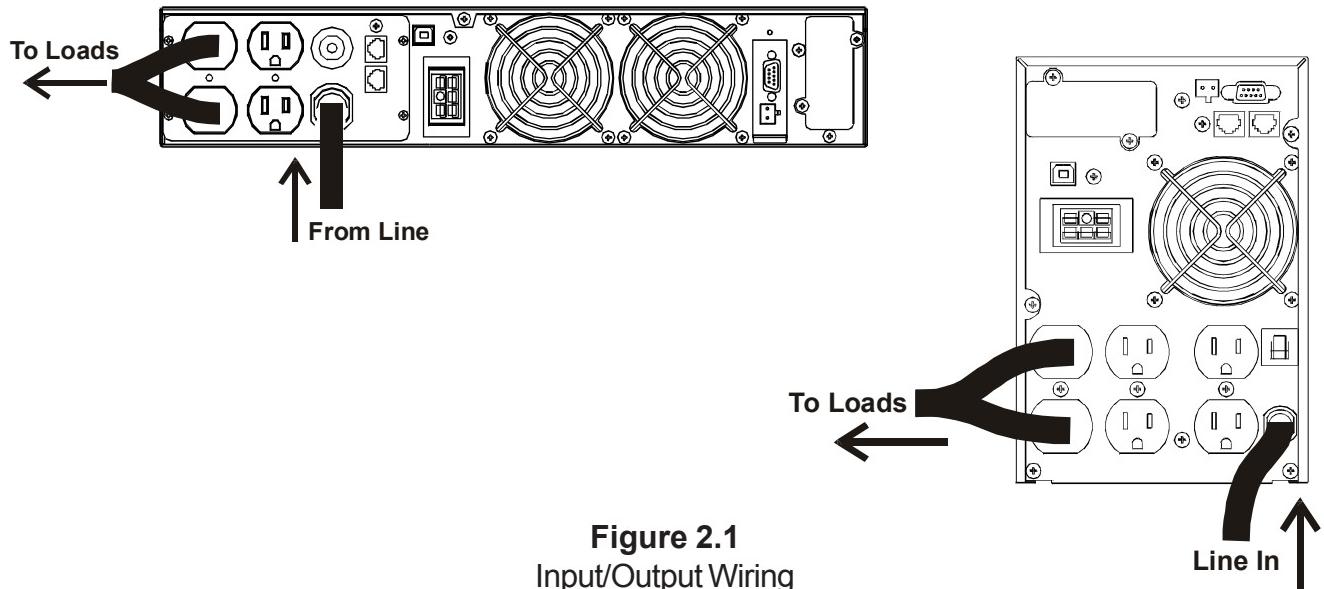


Figure 2.1
Input/Output Wiring

2.3 Connecting External Battery Packs

Up to 2 external battery packs can be connected. Place them next to the unit.

Procedure:

- 1 Turn off the unit (Section 3.1).
- 2 Disconnect the unit from the line and the load(s).
- 3 Connect the cable from the battery pack to the unit (Figure 2.2). If used, connect the second battery pack to the first pack.
- 4 Connect the loads to the unit.
- 5 Connect the line to the unit.
- 6 Turn on the unit (Section 3.1).

Battery Pack Connection Finished

2.3 Connecting an External Battery Pack (Continued)

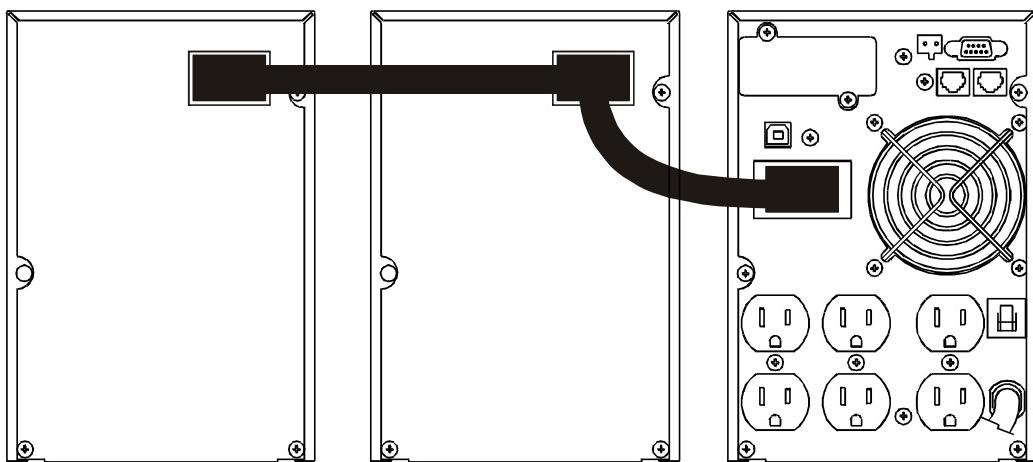


Figure 2.2
External Battery Pack Connection

2.4 Connecting an Emergency Power Off Switch

An Emergency Power Off (EPO) switch is connected to the rear panel's EPO connector. When this switch is opened, the unit shuts off. To restart the unit, turn it on (Section 3.1).

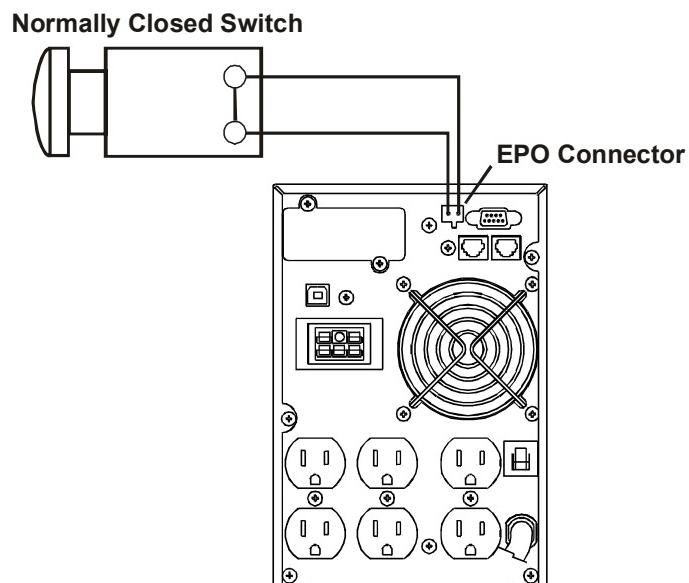


Figure 2.3
Emergency Power Off Switch Wiring

2.5 Connecting the RS-232 Port

With the Alphamon software, you can remotely control the unit with RS-232 communications. It supports Windows 95/98/ME/2000/NT/XP, Novell NetWare or Linux. The CD that came with the unit contains installation instructions. Only use the connection cable that came with the unit.

TIP: If the optional USB port is used, the RS-232 port is automatically disabled.

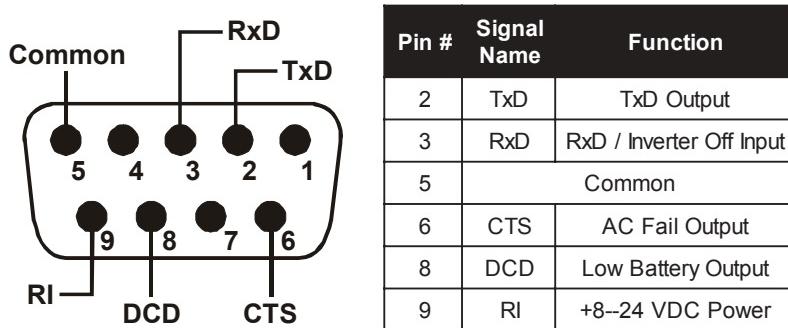


Figure 2.4
DB-9 Port Pin Out

2.6 Network Connection

The rear panel's Network Transient Protector allows the unit to be connected to a network. It uses a single RJ-45 (10BaseT) network card. Plug the input connector to the "IN" connector and the output connector to the "OUT" connector.

Two communication cards can be installed. The SNMP card allows control and management over a network or the internet. The AS/400 card allows voltage free relay contacts. Contact Alpha Technologies for more information and availability.

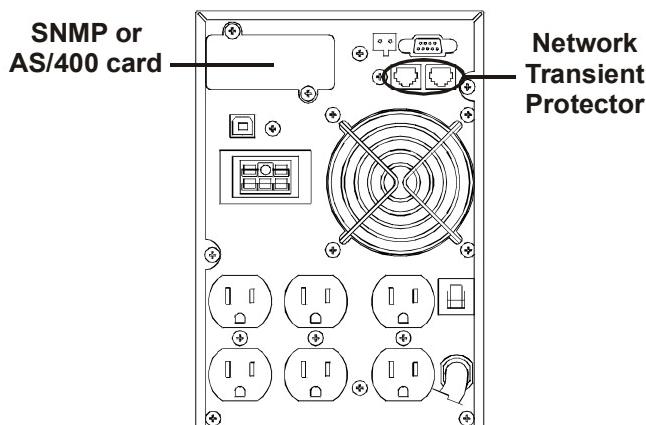


Figure 2.5
Network Connections

Section 3

Operation

This section tells you how to operate the Pinnacle Plus series.

- How to turn the unit on and off (Section 3.1).
- How to use the control panel (Section 3.2).
- How to perform a self test (Section 3.3).
- How to change the unit's parameters (Section 3.4).
- How to troubleshoot the unit (Section 3.5).
- How to replace the batteries (Section 3.6).

3.1 Turning the Unit On and Off

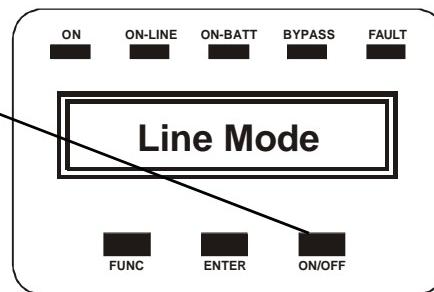
Turn On:



Before turning the unit on for the first time, determine what output voltage you need. If needed, change the unit's output voltage parameter (Section 3.4) before turning on the load.

- 1 Press down the ON/OFF button until "Ready On" appears on the LCD. The fan turns on.

The LCD shows "Ready On" while it conducts a self test. The ON LED turns on. If line power is sent to the loads, the ON-LINE LED turns on. If battery power is sent to the loads, the ON-BATT LED turns on.



TIPS:

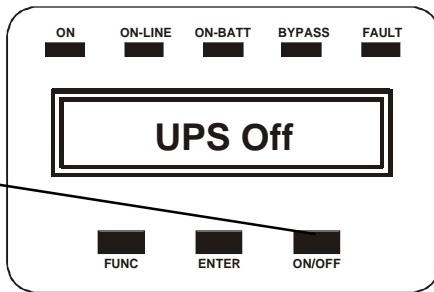
- 1) A brand new unit needs to charge the batteries before the maximum run time is reached. This takes about 24 hours after the unit is turned on.
- 2) If you are changing the unit's parameters (Section 3.4), change them before turning on the loads.

- 2 Turn on the loads.

Turn Off:

- 1 Turn off the loads.
- 2 Press down the ON/OFF button for five seconds.

The LCD shows "Shutdown" then "UPS Off" then becomes dark. The fan and the ON LED turns off.

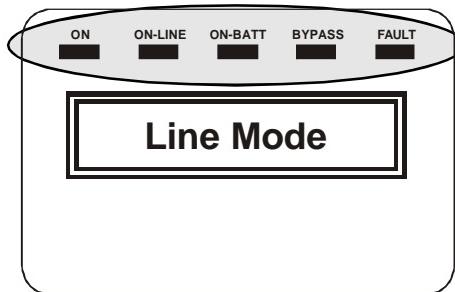


For emergency shutdowns, install an Emergency Power Off switch (Section 2.4).

3.2 Using the Control Panel

LEDs:

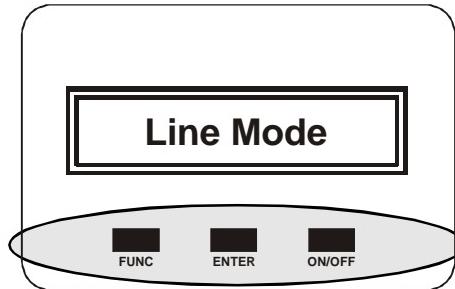
- **ON:** The unit is on.
- **ON-LINE:** Line power is provided to the loads.
- **ON-BATT:** Backup battery power is provided to the loads.
- **BYPASS:** Line power is provided to the loads via the unit's bypass circuit.
- **FAULT:** The unit has a fault. Do troubleshooting (Section 3.5). Press any push button to turn off the alarm.



Push Buttons:

- **ON/OFF:** This turns the unit on and off.
- **ENTER:** This sets the parameter you have selected.
- **FUNC:** This scrolls through the menus.

If no action is taken in 10 seconds, the LCD returns to its original status.



Meter Display:

Measurements are made with the display panel. These read only items are listed in the table to the right.

To make a measurement:

1 Press FUNC for 5 seconds.

“O/P Volt” appears.

2 Press FUNC to move down the list.

If no action is taken in 10 seconds, the LCD returns to its original status.

LCD Shows	Description
O/P VOLT	The AC voltage output
O/P FREQ	The output frequency
I/P VOLT	The input AC voltage
I/P FREQ	The input frequency
BAT VOLT	The battery voltage
O/P LOAD	The % loading
O/P Watt	The output in watts
O/P VA	The output in VA
O/P CURR	The output current
BACKUP TIME	Estimated backup time in minutes
BAT CHARG	The % battery charge
TEMPERATURE	The ambient temperature
BAT PACK NUM	The number of external battery packs
RATING	The UPS's power rating
CPU VERSION	The CPU used in this unit

3.3 Self Test

The battery test finds out if the batteries can provide backup power. It is started from the Parameters menu (Figure 3.1). This should not be done for the first 24 hours after a new unit is installed so the batteries can be fully charged. Every 30 days, the unit automatically does a battery discharge test. If it finds a problem, it is displayed on the LCD.

Procedure

TIP: If no buttons are pushed for 10 seconds, the LCD exits this menu and displays the operating mode.

- 1 Press the FUNC button for 5 seconds.

The first parameter, “O/P Volt Set” is displayed on the LCD (Figure 3.1).

- 2 Press FUNC to scroll through the parameters until “Battery Test” appears.

- 3 Press the ENTER button. When the LCD shows “Test?” press ENTER.

The test starts and the LCD shows “Battery Test.”

- 4 After the test, the unit resumes line mode and the LCD shows “Line Mode.” If a fault is found, the FAULT LED is on. Do troubleshooting as described in Section 3.5.

Self Test Finished

3.4 Changing the Parameters

You can change the unit’s factory set parameters to suit your local conditions (Figure 3.1). Any changes should be done after the unit is started, but before the loads are turned on.

Procedure

TIP: If no buttons are pushed for 10 seconds, the LCD exits this menu and displays the operating mode.

- 1 Press the FUNC button for 5 seconds.

The first parameter, “O/P Volt Set” is displayed on the LCD.

- 2 Press FUNC to scroll through the parameters (Figure 3.1).

- 3 Press ENTER to select a parameter.

3.4 Setting the Parameters (Continued)

- 4** Press FUNC to display the selections. Press ENTER to select the selection.

If the LCD shows "Save?" press ENTER to set the unit to the new parameter.

Parameter Changing Finished

Parameter	LCD Shows	Description	Available Selections	Factory Default
Output Voltage	O/P Volt Set	Select the nominal output voltage	208/220/230/240 VAC	230 VAC
			100/110/115/120/127 VAC	120 VAC
Input Frequency	I/P Freq Set	Select the input frequency range when UPS goes into free run mode	±2%, ±5%, ±7%	±5%
Input/Bypass Voltage	I/P Bypass Set	Select the input voltage range when bypass is available	±10%, +10/-15%, +15/-20%	+10/-15%
Free Run Mode (See Note 4)	Free Run Set	Select if the UPS can operate in free run mode (unsynchronized)	ON/OFF	ON
Bypass Enable/Disable at Free Run mode (See Note 4)	Bypass Disable	If enable is selected, the UPS can go to bypass when unsynchronized	Disable/Enable	Disable
HE Mode Setting (See Note 1)	HE Mode Set	Select if the UPS can run in high efficiency mode	ON/OFF	OFF
Force Manual Bypass	Manual Bypass	FOR SERVICING ONLY *		
Management of Load Groups	Outlet Setting	You can turn the two load groups on and off from the front panel	1 ON & 2 ON 1 OFF & 2 ON 1 OFF & 2 OFF 1 ON & 2 OFF	1 ON & 2 ON
Battery Test	Battery Test	Tests if the battery can provide backup power		
Silence Function	Silence Set	Turn the audible alarm on or off	ON/OFF	OFF
Number of External Battery Packs	Batt Cabinet Set	This lets the UPS predict the battery backup time	0 (if no cabinets are used) 1 (one cabinet used) 2 (two cabinets are used)	0
Site Wiring Alarm (See Note 3)	Sit Fault Set	This enables or disables the site wiring alarm	Disable/Enable	Disable
Select Language	Language	Select the UPS's language	English, German, French, Spanish, Italian	English
Set Generator Mode (See Note 2)	Generator	Set UPS in generator mode**	ON/OFF	OFF
Set RS-232 Communication	RS232 Control	Set the UPS's RS-232 communication	Disable/Enable	Enable

* For the unit's and the power management software to operate properly, the manual bypass should be set to OFF. This feature is meant to be used with an external maintenance bypass switch.

** Turn the unit off and restart after changing this parameter.

Figure 3.1
Parameters

3.4 Setting the Parameters (Continued)

Notes:

- 1) HE Mode Set:** This is used to set if the unit sends the line power through double conversion and then to the loads (HE Mode:OFF) or straight through to the loads (HE Mode:ON).
- 2) Set Generator Mode:** This widens the input parameters so the unit can be used with a generator.
- 3) Site Wiring Alarm:** This tells you if the line's ground and neutral wiring is reversed.
- 4) Free Run Mode, Bypass Enable/Disable at Free Run Mode:** These two parameters work together to control the unit's input voltage or frequency windows.

The available combinations are:

Combination	Result
Free Run: ON Bypass: DISABLED (Factory Default)	Input window is: 45-65 Hz (Automatic frequency sensing) 96-138 VAC (60 Hz) 184-265 VAC (50 Hz)
Free Run: ON Bypass: ENABLED	Input voltage window is: ±10%, +10%/-15% or +15/-20% VAC (operator set)
Free Run: OFF (Bypass is automatically turned off)	Input frequency window is: ±2%, ±5% or ±7% Hz (operator set)

Figure 3.2
Free Run/Bypass Combination Table

3.5 Troubleshooting

When the fault LED turns on or the audible alarm is heard, perform troubleshooting as shown in the table below.

LCD Shows	Audible Alarm *	Description	Action
Output Overload	2 beeps per second	The UPS is overloaded. It is operating in Bypass mode.	Shut down loads, starting with the least important.
Battery Test	No beeps	The UPS is performing a battery test.	None. The UPS will return to normal operation when the test is done.
Over-Charge	Constant beeping	The batteries are overcharged.	Turn off the loads and the UPS. Contact Alpha Technologies.
Low Battery	2 beeps every 5 seconds	The UPS is operating on battery power and the batteries are almost discharged.	The UPS will automatically restart when the line becomes requalified.
On-Battery	1 beep every 5 seconds	The UPS is operating on battery power.	Shutdown the loads.
Charger Failure	Constant beeping	The charger is faulty.	Contact Alpha Technologies.
Over-Temperature	Constant beeping	The UPS is over heating.	--Make sure the UPS's fans and vents are not blocked. --Make sure the ambient air temperature is below 40°C. --If this does not solve the problem, contact Alpha Technologies.
Output Short	Constant beeping	The output is short circuited.	Contact Alpha Technologies.
High Output Voltage	Constant beeping	The output voltage is high.	Contact Alpha Technologies.
Low Output Voltage	Constant beeping	The output voltage is low.	Contact Alpha Technologies.
Bus Fault	2 beeps per second	The internal DC bus voltage is high.	Turn off the loads and the UPS. Contact Alpha Technologies.
Site Wiring Fault	1 beep per second	There is voltage between the line's neutral and ground.	Turn off the loads and the UPS. Correct the site wiring, then restart the UPS.
Line Abnormal	1 beep per second		

*To turn off the alarm, press any button on the control panel

Figure 3.3
Troubleshooting Table

3.6 Battery Replacement

The batteries are replaced without shutting off the unit or the loads. Replace them with the same quantity and type as the originals.



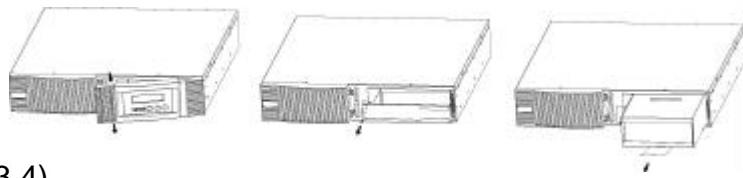
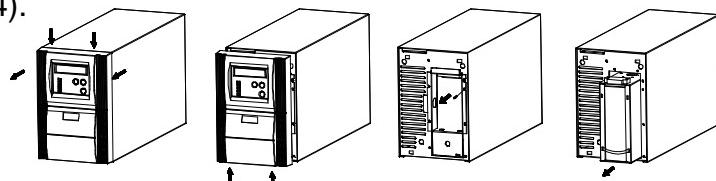
DANGER: Make sure you have read the safety instructions in the front of this manual.
Only qualified personnel should change them.

Procedure



WARNING: Do not replace the batteries when the ON-BATT LED is on.

- 1 Enable the manual bypass (Section 3.4).
- 2 Pop off and remove the front cover.
- 3 Unscrew and remove the battery cover.
- 4 Remove the battery cartridge from the unit. Take note of the battery configuration and wiring.
- 5 Replace the batteries with any of the qualified batteries listed in Figure 3.4.
- 6 Push the cartridge with the new batteries back into the unit.
- 7 Reinstall the battery cover.
- 8 Reinstall the front cover.
- 9 Disable the manual bypass (Section 3.4)
- 10 Do a self test (Section 3.3).



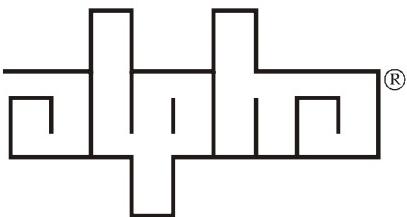
Battery Replacement Finished

Model	Battery Type	# of Batteries	Manufacturer
Pinnacle Plus 700	12V, 7.2 AH	2	CSB-GP1272 Panasonic LC-R127R2P Hitachi HV7-12F2
Pinnacle Plus 1000		3	
Pinnacle Plus 2000		6	
Pinnacle Plus 1500	12V, 9.0 AH	3	CSB HR1234W F2
Pinnacle Plus 3000		6	

Figure 3.4
Qualified Replacement Batteries

3.7 Specifications

	700/700RM	1000/1000RM	1500/1500RM	2000/2000RM	3000/3000RM
Electrical					
Output VA (W)	700 (490)	1000 (700)	1500 (1050)	2000 (1400)	3000 (2100)
Input/Output Voltage (VAC)	100 / 110 / 115 / 120 / 127				
Input Current (Max); Amps, 120 VAC Units	10	12	15	20	30
Input Frequency (Hz)	50 / 60 (Auto Sensing)				
Output Frequency (Hz)	50 / 60 ± 0.5%				
Transfer Time (mSec)	0				
Crest Factor	3:1				
Harmonic Distortion	< 3% of THD at linear load				
Output Waveform	Sine				
UPS Design Technology	On-Line, fully digitized microprocessor controlled				
High Efficiency Mode (AC to DC)	>95%				
Overload Recovery	Auto transfer to UPS				
Surge Protection	120V: IEEE C 62.41 / 230V: IEEE 61000-4-5 Level 3				
Overload Protection	125% for 1 minute and 150% for 10 seconds				
Short Circuit Protection	UPS output automatically cut off or input fuse/circuit breaker protection				
Battery Type	Sealed, maintenance free lead acid				
Battery Protection	Cut off when battery is low to prevent drainage				
Battery Recharge Time	4 hours to 90% of capacity				
Communication	RS-232 serial port / USB port / built-in SNMP slot				
Mechanical					
Tower Dimensions W x D x H; in (mm)	6.0 x 16.5 x 9.4 (152 x 420 x 238)			8.9 x 16.7 x 14.2 (225 x 425 x 360)	
Tower Weight; lb (kg)	29.7 (13.5)	35.6 (16.2)	37.4 (17.0)	68.4 (31.1)	72.6 (33.0)
Rack Mount Dimensions W x D x H; in (mm)	16.9 x 16.7 x 3.3 (428 x 425 x 84) (2RU)			16.9 x 25.0 x 3.3 (428 x 635 x 84) (2RU)	
Rack Mount Weight; lb (kg)	32.1 (14.6)	37.6 (17.1)	39.8 (18.1)	69.5 (31.6)	71.5 (32.5)
Input Connectors	NEMA 5-15P			NEMA L5-20P	NEMA L5-30P
Environmental					
Operating Temperature °F(°C)	32-104 (0-40)				
Storage Temperature °F(°C)	-4-122 (-20-50)				
Altitude (Max); ft (m)	15000 (3500)				
Audible Noise @1 m	< 40 dBA				
Humidity	up to 95%, non-condensing				
Conformance					
Safety (Designed to Meet)	UL 1778 / CSA				
EMC (EMS / EMI)	IEC 61000-4 / FCC Part 15 Class B / CISPR 22				



LIMITED 36-MONTH WARRANTY AC PRODUCTS

Alpha Technologies warrants its equipment to be free of manufacturing defects in material and workmanship for a period of 36 months from the date of manufacture. The liability of Alpha Technologies under this warranty is solely limited to repairing, replacing, or issuing credit for such equipment (at the discretion of Alpha Technologies), provided that:

1. Alpha Technologies' Customer Service Department is promptly notified, by facsimile or telephone, that a failure or defect has occurred.
2. Alpha Technologies' Customer Service Department issues a Return Materials Authorization (RMA) number, and designates the service location. The RMA must be clearly marked on the outside of the shipping container.
3. Purchaser is responsible for all in-bound shipping and handling charges (COD and freight collect will not be accepted without prior approval from Alpha Technologies); Alpha Technologies will pay out-bound surface shipping charges for return of repaired equipment.
4. A satisfactory examination of the returned unit by Alpha Technologies' Service personnel shall disclose that defects have not been caused by misuse, neglect, improper installation, repair, alteration, or accident, or failure to follow instructions furnished by Alpha Technologies. If Alpha Technologies' Service personnel determine that the unit has been damaged due to one of these causes, or if the unit is free of defects, a handling or repair fee may be assessed prior to returning the unit.

WITH RESPECT TO BATTERIES, PERIPHERAL DEVICES, ATTACHMENTS OR APPARATUS NOT MANUFACTURED BY ALPHA TECHNOLOGIES, ALPHA WILL ASSIGN TO THE PURCHASER ITS RIGHTS UNDER THE ORIGINAL MANUFACTURER'S WARRANTY OF SUCH BATTERIES, PERIPHERAL DEVICES, ATTACHMENTS OR APPARATUS, BUT OFFERS NO ADDITIONAL WARRANTIES IN CONNECTION THEREWITH.

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IN NO CASE SHALL ALPHA TECHNOLOGIES BE LIABLE FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES WHATSOEVER, INCLUDING WITHOUT LIMITATION ANY CLAIM FOR LOST PROFITS OR REVENUES, EVEN IF ALPHA TECHNOLOGIES HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH, FOR BREACH OF THIS OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED.

Any action for breach of this limited 36-month warranty must be brought within a period of 36 months from date of manufacture.

This limited 36-month warranty does not extend to any unit that has been repaired or altered by any party other than Alpha Technologies or its Authorized Service Center.

Alpha Technologies reserves the right to discontinue particular models and to make modifications in design and/or function at any time, without notice and without incurring obligations to modify previously purchased units.

■ Alpha Technologies
3767 Alpha Way
Bellingham, WA, USA 98226
Tel: (360) 647-2360
Fax: (360) 671-4936

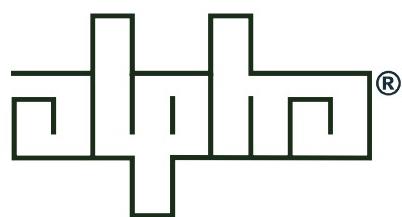
■ Alpha Technologies Ltd.
4084 McConnell Court
Burnaby, BC, Canada V5A 3N7
Tel: (604) 430-1476
Fax: (604) 430-8908

■ Alpha Technologies Europe Ltd
Twyford House
Thorley, Bishop's Stortford
Hertfordshire CM22 7PA, UK
Tel: +44-1279-501110
Fax: +44-1279-659870

■ Alpha Technologies GmbH
Hansastrasse 8
D-91126 Schwabach, Germany
Tel: +49-9122-79889-0
Fax: +49-9122-79889-21

■ MTI Technologies
P.O. Box 56468
Limassol, Cyprus 3307
Tel: +357-253-75675
Fax: +357-253-59595

■ Alpha Technologies
Units R5-R7, Regents Park Estate
Cnr Park Rd. and Prince's Rd East
Regents Park, NSW 2143, Australia
Tel: +61-2-9722-3320
Fax: +61-2-9722-3321



Alpha sales and service offices located throughout the world

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